

Step-by-Step Tutorial for the Use of the Sediment Temperature Database

The database requires the software *ArcG/IS* version 9.1 installed on your computer. *ArcG/IS* is a product of the company ESRI.

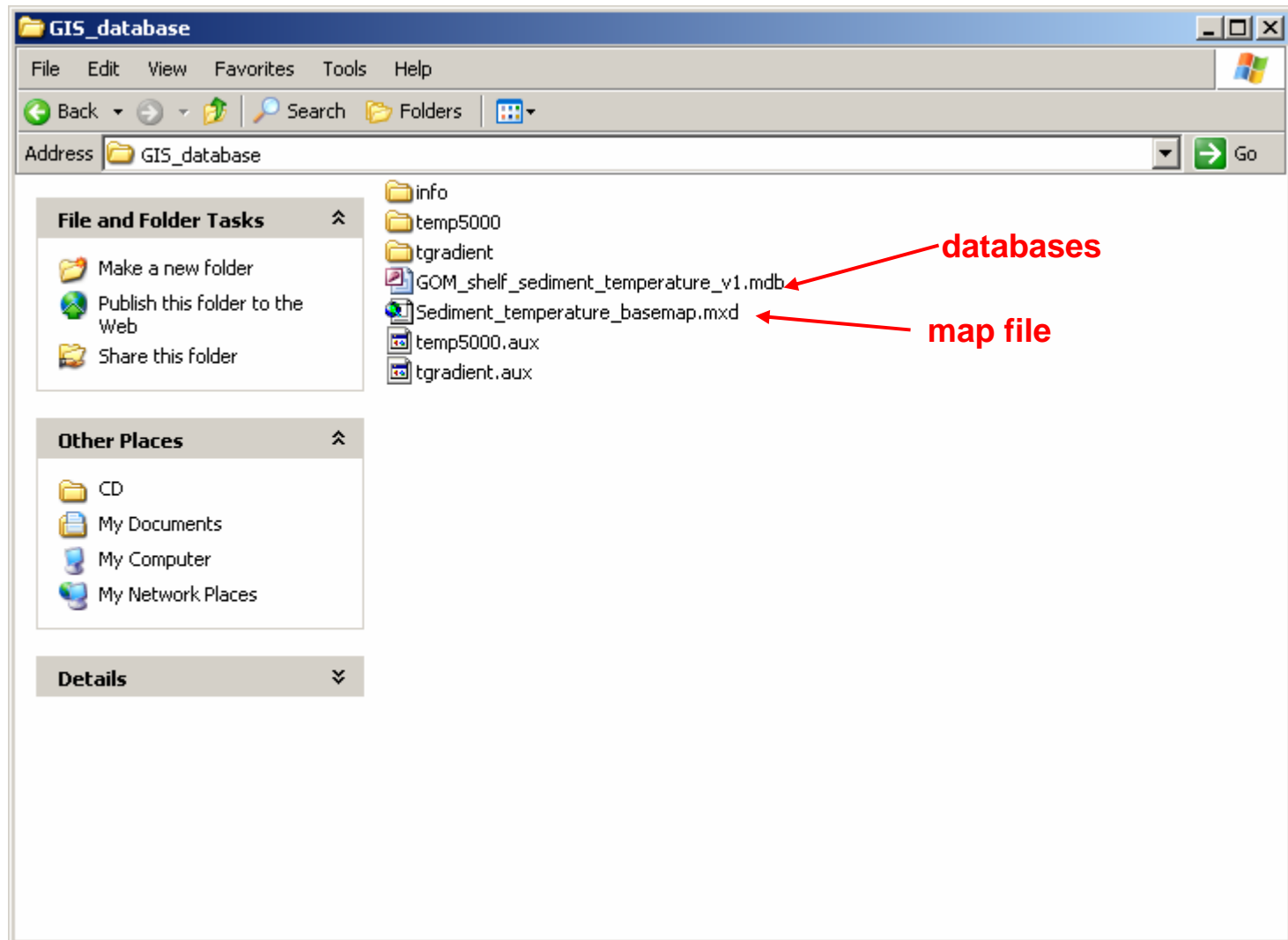
Seiichi Nagihara

Department of Geosciences

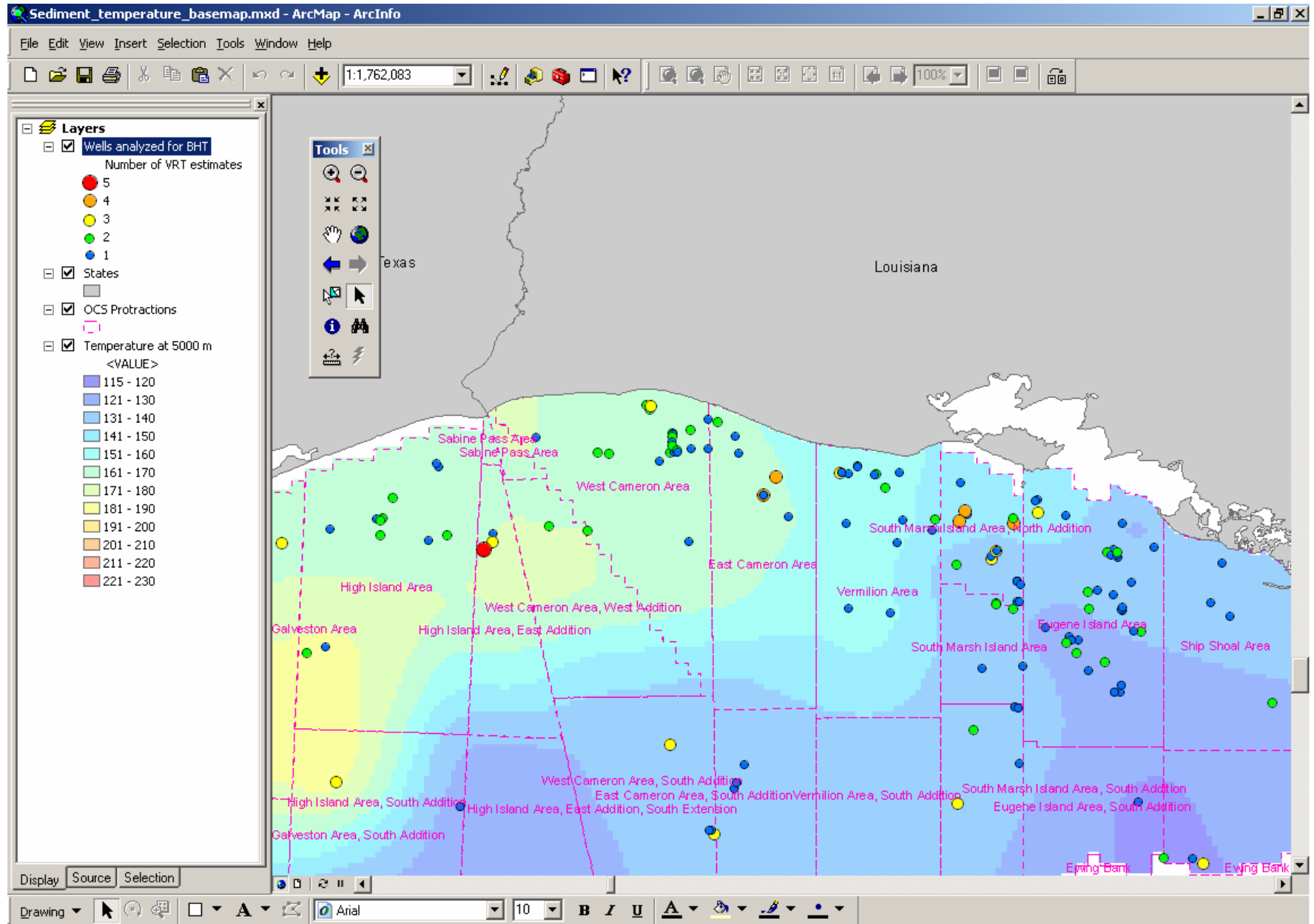
Texas Tech University

July 2006

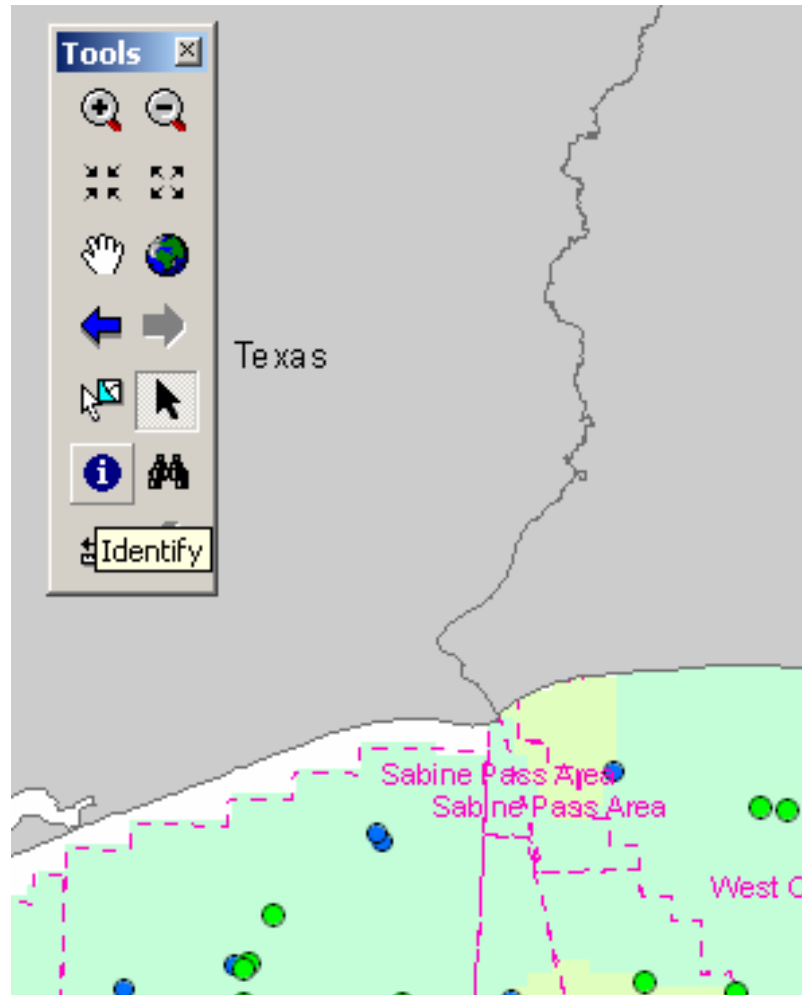
1. Make sure all the *ArcGIS* database files and map file are located within the same folder, double-click the map file to open it.



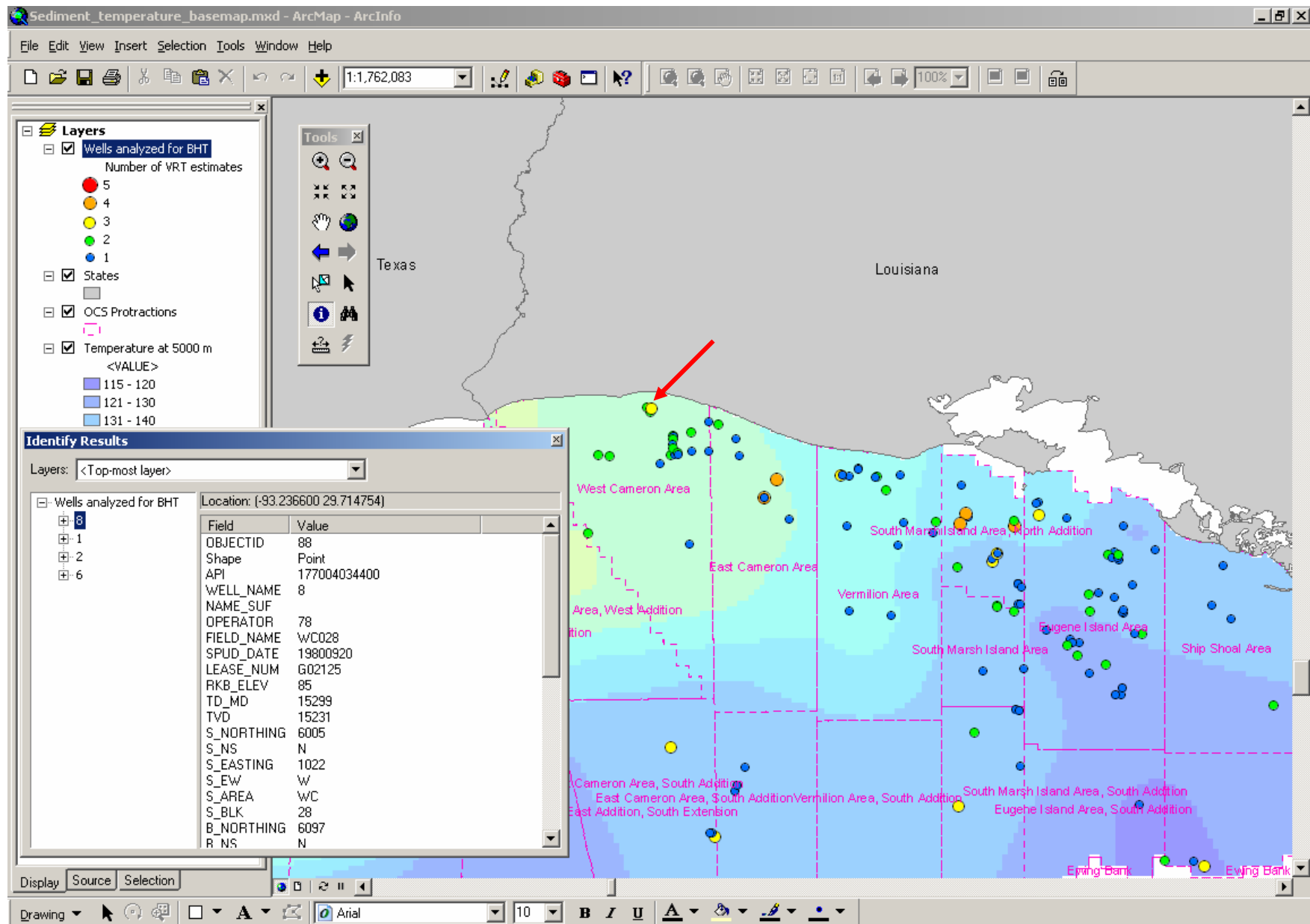
2. Well locations displayed with OCS protractions.



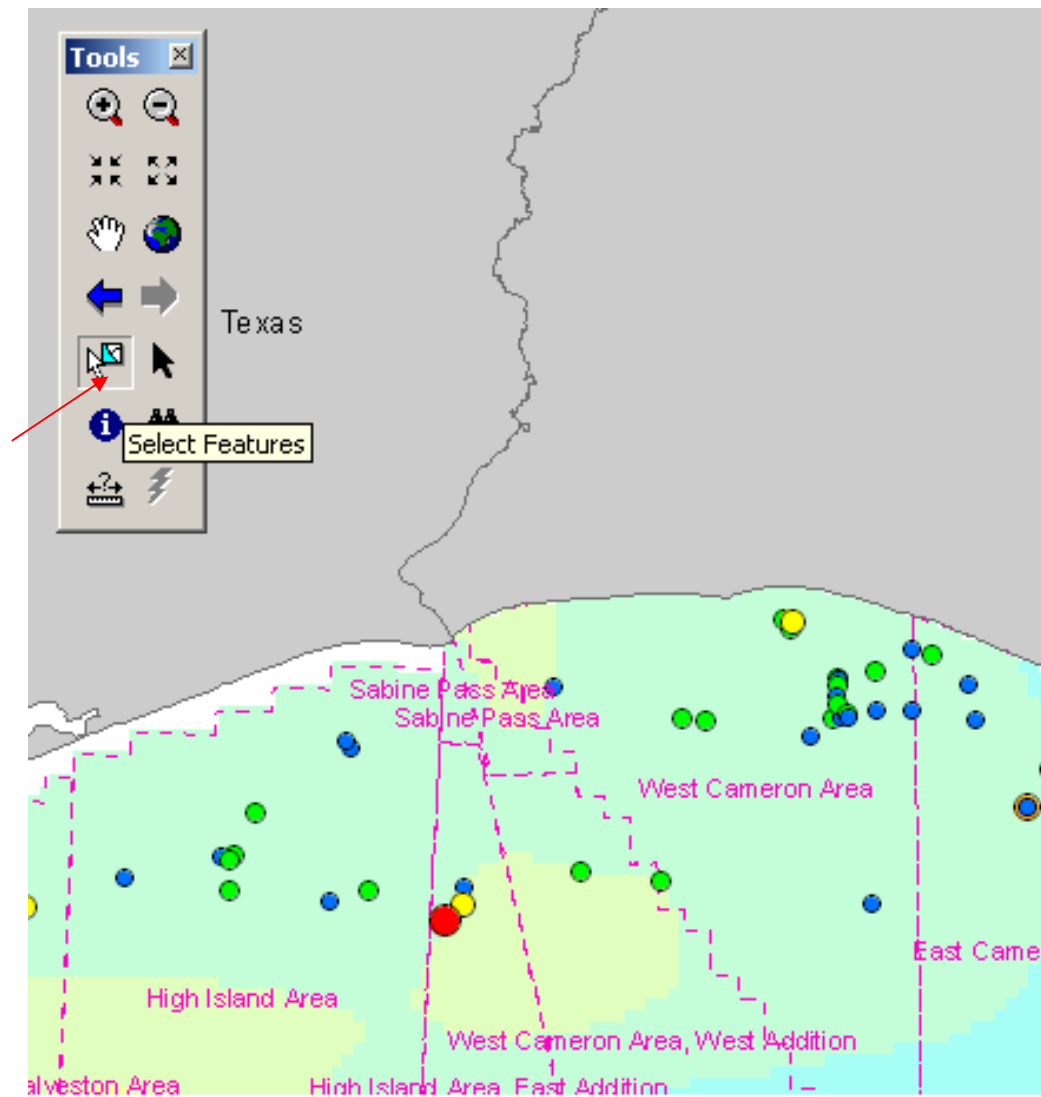
3. Use “Identify” tool to manual click on a circle that represents a well location.



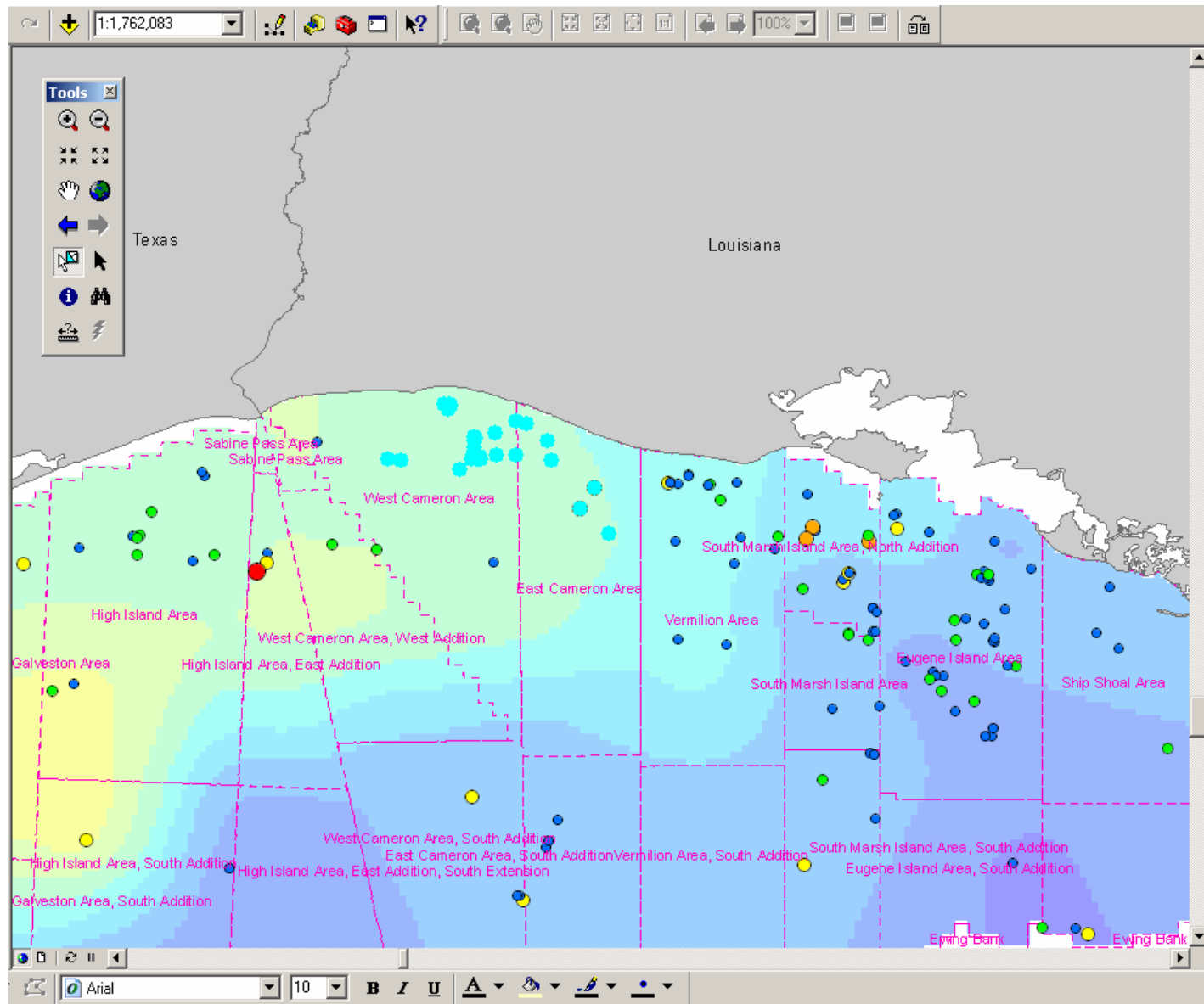
4. Attributes of the well (API, lease block name, etc.) appear. After getting the information you need, close the “Identify Results” window.



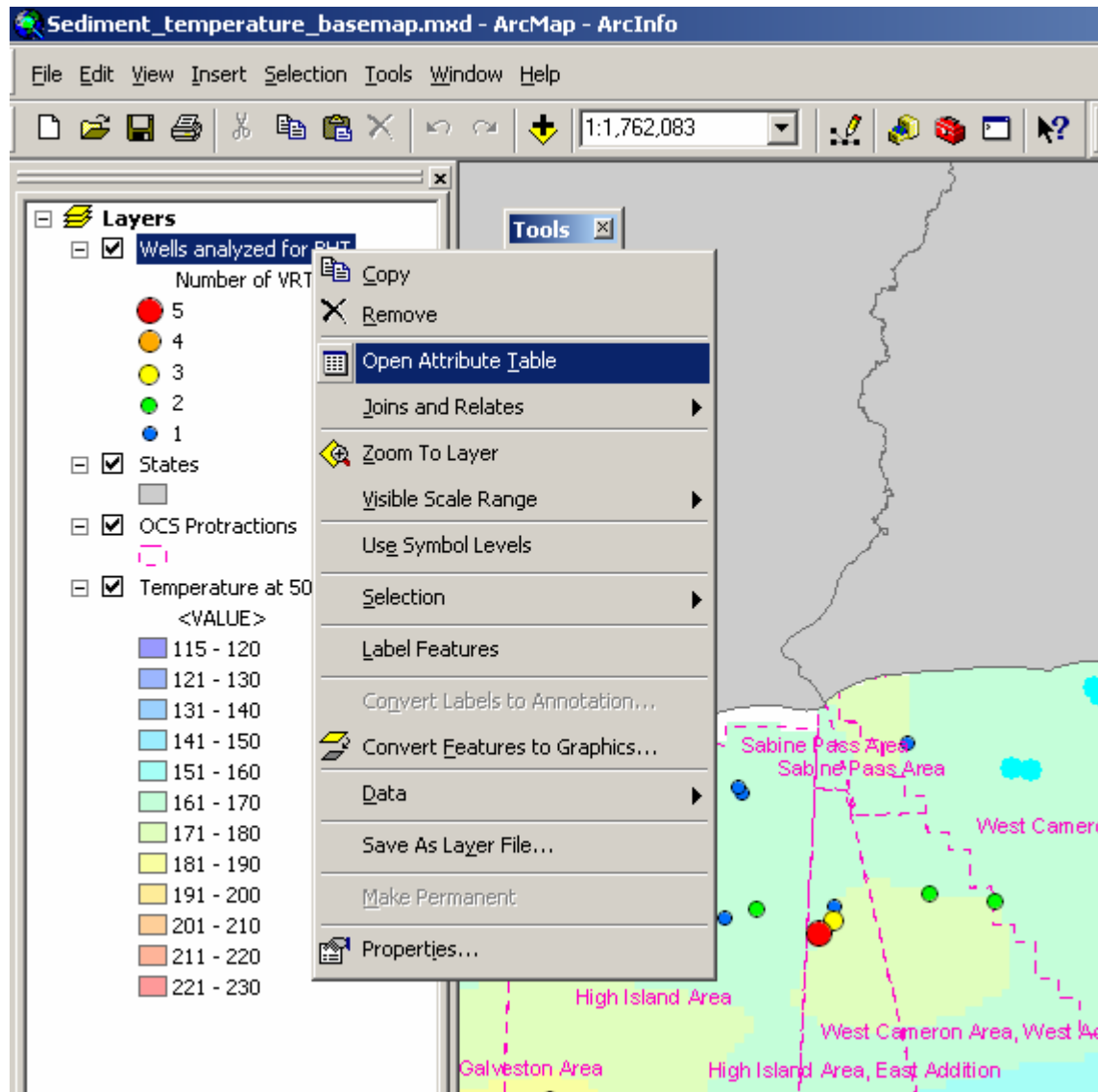
5. Switch to “Select Features” mode.



6. Draw a box around or click individually the wells of your interest. They become highlighted in light blue.



7. Open the attribute table for the well location database.



8. Find the highlighted row in the table, which displays attributes of the selected well. Scroll all the way to the right. The number of VRT estimates, the thermal gradient, etc. are listed.

If you want to estimate the temperature at any depth, use the formula:
Temperature = T0 + gradient * depth.

B_LAT	Num_mVRT	group_ID	Gradient	T0	T5000
29.466555	1	19	0.0321	-9.6	150.9
29.412606	2	19	0.0321	-9.6	150.9
29.663881	1	22	0.0396	-36.8	161.2
29.627285	2	22	0.0396	-36.8	161.2
29.613306	2	22	0.0396	-36.8	161.2
29.610475	1	22	0.0396	-36.8	161.2
29.603196	1	22	0.0396	-36.8	161.2
29.586915	2	22	0.0396	-36.8	161.2
29.577007	1	22	0.0396	-36.8	161.2
29.544113	2	22	0.0396	-36.8	161.2
29.597369	1	23	0.0321	9.5	170
29.542958	1	22	0.0396	-36.8	161.2
29.542494	1	22	0.0396	-36.8	161.2
29.569804	2	22	0.0396	-36.8	161.2
29.553143	2	22	0.0396	-36.8	161.2
29.546236	1	22	0.0396	-36.8	161.2
29.554685	1	22	0.0396	-36.8	161.2
29.555254	1	22	0.0396	-36.8	161.2
29.509283	1	22	0.0396	-36.8	161.2
29.251876	2	23	0.0321	9.5	170
29.211771	1	22	0.0396	-36.8	161.2

Record: 1 Show: All Selected Records (31 out of 365 Selected.) Options

9. Go to "Options" then "Related Tables, VRT values"

Sediment_temperature_basemap.mxd - ArcMap - ArcInfo

File Edit View Insert Selection Tools Window Help

1:1,762,083 100%

Layers

- ☒ Wells analyzed for BHT
Number of VRT estimates
 - 5
 - 4
 - 3
 - 2
 - 1
- ☒ States
- ☒ OCS Protractions
- ☒ Temperature at 5
<VALUE>
 - 115 - 120
 - 121 - 130
 - 131 - 140
 - 141 - 150
 - 151 - 160
 - 161 - 170
 - 171 - 180
 - 181 - 190
 - 191 - 200
 - 201 - 210
 - 211 - 220
 - 221 - 230

Attributes of Wells analyzed for BHT

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Related Tables

- Find & Replace...
- Select By Attributes...
- Select All
- Clear Selection
- Switch Selection
- Add Field...
- Related Tables**
 - VRT values : Corrected_BHTs
- Create Graph...
- Add Table to Layout
- Reload Cache
- Export...
- Appearance...

High Island Area, South Addition
Galveston Area, South Addition
West Cameron Area, South Addition
East Cameron Area, South Addition
Vermilion Area, South Addition
South Marsh Island Area, South Addition
Eugene Island Area, South Addition
Ewing Bank

10. The table for the corrected BHT (VRT) database appears.

Sediment_temperature basemap.mxd - ArcMap - ArcInfo

File Edit View Insert Sele

Attributes of Corrected_BHTs

OBJECTID*	BLOCK	API	SSF_DEPTH	VRT	SSF_DEP_FT	VRT_F
38	EC2	177034058100	4531	145.3	14865	294
39	EC2	177034058100	5147	167.2	16886	333
40	EC14	177034038800	1333	45.5	4373	114
41	EC26	177034014700	1624	78.7	5328	174
42	EC41	177034035400	1401	55.9	4596	133
43	EC41	177034035400	3712	114.1	12178	237
44	EC41	177034035400	3983	121.3	13068	250
45	EC41	177034035400	5331	183	17490	361
46	EC60	177034056400	4500	146.2	14764	295
47	EC60	177034057900	3312	108.3	10866	227
48	EC60	177034057900	4108	129.5	13478	265
49	EC60	177034057900	4164	125.2	13661	257
50	EC60	177034057900	4712	153.7	15459	309

Record: 1 Show: All Selected Records (50 out of 571 Selected.) Options

Layers

- ☒ Wells analyzed for Number of VR
 - 5
 - 4
 - 3
 - 2
 - 1
- ☒ States
- ☒ OCS Protractions
- ☒ Temperature at S

<VALUE>

- 115 - 120
- 121 - 130
- 131 - 140
- 141 - 150
- 151 - 160
- 161 - 170
- 171 - 180
- 181 - 190
- 191 - 200
- 201 - 210
- 211 - 220
- 221 - 230

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Display Source Selection

Drawing

Arial

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B I U

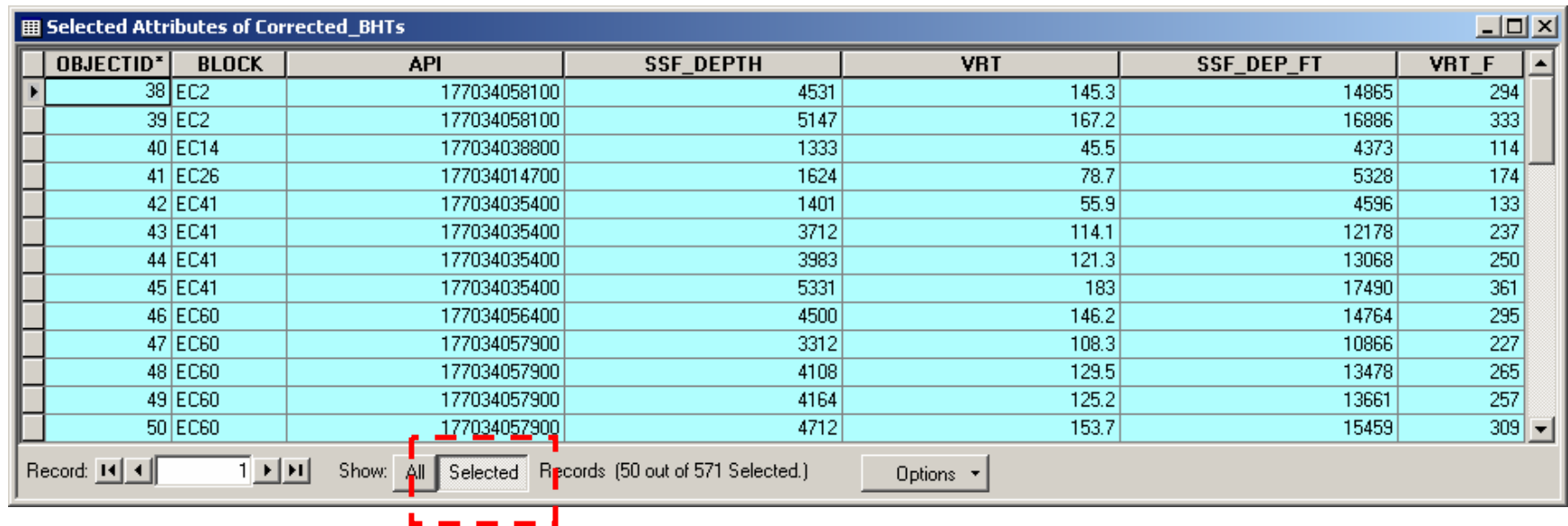
Ship Shoal Area

Addition

Addition

Ewing Bank

11. Click “selected”. The table shows the VRTs and their sub-bottom depths in metric and English units.



Selected Attributes of Corrected_BHTs

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12. Click “Option”, and then “Create Graph ...” to produce a temperature vs. depth plot.

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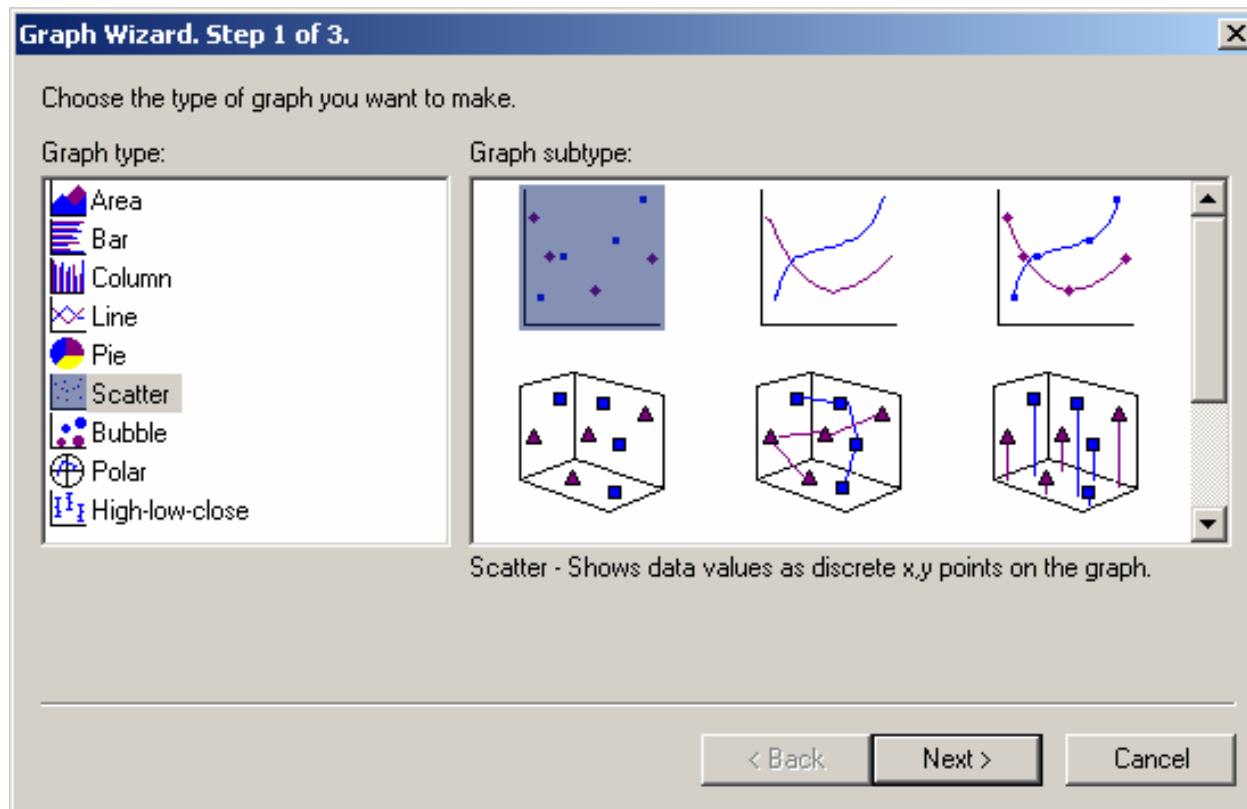
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29.546236	1	22	0.0396
29.554685	1	22	0.0396

Options:

- Find & Replace...
- Select By Attributes...
- Select All
- Clear Selection
- Switch Selection
- Add Field...
- Related Tables
- Create Graph...
- Add Table to Layout
- Reload Cache
- Export...
- Appearance...

13. Choose "Scatter" graph type.



14. Set “VRT” for the Y-axis and “SSF_DEPTH” for the X-axis.

Graph Wizard. Step 2 of 3.

Choose the layer or table containing the data:
Corrected_BHTs

☒ Use selected set of features or records

Choose the fields you want to graph. Use the arrow keys to order the fields.

Y axis field:

- ☐ API
- ☐ SSF_DEPTH
- ☒ VRT
- ☐ SSF_DEP_FT
- ☐ VRT_F

X axis field:

- ☐ API
- ☒ SSF_DEPTH
- ☐ VRT
- ☐ SSF_DEP_FT
- ☐ VRT_F

How to Choose Fields...

Preview:

Graph of Corrected BHTs

SSF_DEPTH	VRT
1000	40
1500	80
4500	150
5000	170

< Back Next > Cancel

15. Give a title and axis labels.

Graph Wizard, Step 3 of 3.

Choose other options.

Title:

Sub title:

☐ Label Data With Value

☒ Show Legend

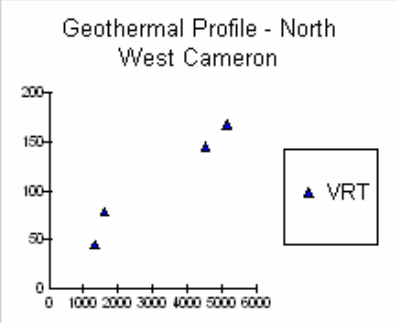
☐ Show Graph on Layout

Advanced Options... Add Overlay...

< Back Finish Cancel

Preview:

Geothermal Profile - North West Cameron



Distance (m)	Temperature (deg-C)
1000	45
1500	80
4500	145
5000	170

Advanced Options

Titles Axis Fonts Markers Trends Error Bar Background

Graph Title

Bottom Title

Left Title

Title

☒ Horizontal ☐ Up ☐ Down

Right Title

Title

☒ Horizontal ☐ Up ☐ Down

OK Cancel Apply Now Help

Distance (m)	Temperature (deg-C)
23.377807	1
29.544113	2
29.597369	1
29.542958	1
29.542494	1

16. Temperature vs. Depth plot is generated.

